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| 10/750,613 | 01/02/2004 | Dan Castellano | | 8933 |

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| EXAMINER | |
|---|---|
| SHEDRICK, CHARLES TERRELL | |
| **ART UNIT** | **PAPER NUMBER** |
| 2687 | |

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/750,613 | CASTELLANO ET AL. | |
| | Examiner | Art Unit | |
| | Charles Shedrick | 2687 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-17 is/are rejected.

7)☒ Claim(s) 5-9,15-16 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 02 January 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Objections*

1. **Claims 5,6,15**, and **16** objected to because of the following informalities:

- Claims 5 and 15 don't end with a period.
- Claims 6 and 16 are not a sentence.

Appropriate correction is required.

### *Double Patenting*

1. **Claims 7- 9** objected to under 37 CFR 1.75 as being a substantial duplicate of **claims 1-3**. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

2. Applicant is advised that should claims 1-3 be found allowable, claims 7-9 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

*Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 5,6, 15, and 16** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claims 5,6,15,** and **16** recite the limitation -- the method --. There is insufficient antecedent basis for this limitation in the claim.

*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-17** are rejected under 35 U.S.C. 102(b) as being anticipated by Martek et al. (**US Patent # 5,969,689**).

Consider **claims 1 and 7**, Martek et al. clearly show and disclose a system (**figures 1-7**) for communicating signals from subscribers to a base station (**column 2 lines 35-44, column 8 lines 49-62**), the system comprising a first antenna **100** (**figure 1a**) and one or more additional antennas **150** (**figure 1a**); and each antenna is comprised of two or more antenna elements (**101-**

**103,152, and 153**) (**figure 1a**) spaced apart in a vertical direction from one another, wherein the antenna element may be of any antenna technology suitable for communicating the signals, including but not limited to omni directional antennas, dipoles, slotted antennas, horns and arrays (**column 2 line 35 –column 6 line 10**).

Consider **claims 2 and 8** and **as applied to claims 1 and 7 above**, Martek et al. clearly show and disclose the system of claim 1 and claim 7, wherein the spacing and phasing among the antenna elements of each antenna are selected to create a radiation pattern that produces a signal reduction at a distance where interferers are expected to operate (i.e., antenna beam width and radiation can be controlled automatically or manually based on interference)(**column 8 lines 29-47, column 9 lines 48-61, column 10 lines 12-30**).

Consider **claims 3 and 9** and **as applied to claims 1 and 7 above**, Martek et al. clearly show and disclose the system of claim 1 and claim 7wherein each antenna is constructed with different antenna element spacings and/or phases to produce a radiation pattern for signals within the desired area of coverage that is unique from the other antennas of the system of claim 1 and 7, while simultaneously producing the signal reduction for interfering signals addressed in claim 2 and 8 (**figures 1-7**)(**column 6 line 65-column 7 line 10, column 8 lines 29-47, column 9 lines 48-61, column 10 lines 12-30**).

Consider **claim 4** and **as applied to claim 1 above**, Martek et al. clearly show a disclose the system of claim 1, wherein the RF signal from each antenna is analyzed separately for each subscriber and chosen for reception (i.e., the signal processor is operable to receive a signal and adjust the subscriber beam in response to the calibration signal)(**column 10 line 40 – column 12 line 63**) (**figure 6**).

Consider **claim 5** and **as applied to claim 4 above**, Martek et al. clearly show a disclose the system of claim 1 wherein the signal quality of RF signal from each antenna pattern is measured for each subscriber based on signal level and/or signal to interference level (i.e., C/I.)(i.e., communication parameters suitable to indicate the need for adjusting the tilt of the antenna may include C/I ratio, energy density, SAT/RSSI signals) (**column 10 line 40 – column 12 line 63) (figure 6)**.

Consider **claim 6** and **as applied to claim 4 above**, Martek et al. clearly show a disclose the system of claim 4 wherein the RF signal from the antenna pattern with the best signal quality for each subscriber as determined in by the method of claim 5 is selected and routed to a base station receiver. Selection and routing may be via switch selection or by using commonly employed diversity signal combining methods such as Maximal Ratio Combining (i.e., the reference signal generator 662 may be adapted to provide a signal such that when it is combined with the output of SAT/RSSI demodulator 650, that SAT/RSSI signals associated with the coupled antenna module, or even other antenna modules of this BTS, are eliminated, leaving only "foreign" SAT/RSSI signals to be communicated to processor 660 and any number of methods suitable to provide processor 660 with communication parameters indicating the need to adjust the antenna system may be utilized, if desired) (**column 10 line 40 – column 12 line 63) (figure 6 and figure 7)**.

Consider **claim 10** and **as applied to claim 7 above**, Martek et al. clearly show a disclose the system of claim 7 wherein the RF signal from each antenna is routed to the base station to be analyzed separately for each subscriber and chosen for reception as determined by methods included in the base station design (i.e., the signal processor is operable to receive a signal and

adjust the subscriber beam in response to the calibration signal) (**column 10 line 40 – column 12 line 63) (figure 6 and figure 7)**

Consider **claim 11**, Martek et al. clearly show and disclose a system for communicating signals between a base station and subscribers (**figures 1-7**), the system comprising a first antenna **100** (**figure 1a**) and one or more additional antennas**150** (**figure 1a**); and each antenna is comprised of two or more antenna elements (**101-103,152 ,and 153**) (**figure 1a**) spaced apart in a vertical direction from one another, wherein the antenna element may be of any antenna technology suitable for communicating the signals, including but not limited to omni directional antennas, dipoles, slotted antennas, horns and arrays((**column 2 line 35 –column 6 line 10 and column 8 lines 49-62**) .

Consider **claim 12** and **as applied to claim 11 above**, Martek et al. clearly show a disclose the system of claim 11 wherein the spacing and phasing among the antenna elements of each antenna are selected to create a radiation pattern that produces a signal reduction at a distance where interferers are expected to operate (i.e., antenna beam width and radiation can be controlled automatically or manually based on interference)(**column 8 lines 29-47, column 9 lines 48-61, column 10 lines 12-30**).

Consider **claim 13** and **as applied to claim 11 above**, Martek et al. clearly show a disclose the system of claim 11 wherein each antenna is constructed with different antenna element spacings and/or phases to produce a radiation pattern for signals within the desired area of coverage that is unique from the other antennas of the system of claim 11, while simultaneously producing the signal reduction for interfering signals addressed in claim 12

**(figures 1-7)(column 6 line 65-column 7 line 10, column 8 lines 29-47, column 9 lines 48-61, column 10 lines 12-30).**

Consider **claim 14** and **as applied to claim 11 above**, Martek et al. clearly show and disclose the system of claim 11, wherein the RF signal from each antenna is analyzed separately for each subscriber and chosen for reception (i.e., the signal processor is operable to receive a signal and adjust the subscriber beam in response to the calibration signal)**(column 10 line 40 – column 12 line 63) (figure 6)**.

Consider **claim 15** and **as applied to claim 14 above**, Martek et al. clearly show and disclose the method of claim 14,wherein the signal quality of RF signal from each antenna pattern is measured for each subscriber based on signal level and/or signal to interference level (i.e., C/I.)(i.e., communication parameters suitable to indicate the need for adjusting the tilt of the antenna may include C/I ratio, energy density, SAT/RSSI signals) **(column 10 line 40 – column 12 line 63) (figure 6).**

Consider **claim 16** and **as applied to claim 14 above**, Martek et al. clearly show and disclose the method of claim 14,wherein the RF signal from the antenna pattern with the best signal quality for each subscriber as determined by the method of claim 15 is selected and routed to a base station receiver. Selection and routing may be via switch selection or by using commonly employed diversity signal combining methods such as Maximal Ratio Combining. (i.e., the reference signal generator 662 may be adapted to provide a signal such that when it is combined with the output of SAT/RSSI demodulator 650, that SAT/RSSI signals associated with the coupled antenna module, or even other antenna modules of this BTS, are eliminated, leaving

only "foreign" SAT/RSSI signals to be communicated to processor 660 and any number of methods suitable to provide processor 660 with communication parameters indicating the need to adjust the antenna system may be utilized, if desired) **(column 10 line 40 – column 12 line 63) (figure 6 and figure 7)**.

Consider **claim 17** and **as applied to claim 11 above**, Martek et al. clearly show and disclose the system of claim 11, wherein the antenna selected during the conduct of the method of claim 16 for communications from each subscriber to the base station is also selected for communicating from the base station to each subscriber (i.e., a position motor similar to position motor 630 may be adapted to adjust placement of individual antenna elements or angles or placement of reflectors to result in an adjusted beam width. Such adjustment may be provided by the various control circuits discussed above utilizing communication parameters that not only look to effects of other BTS communications, but additionally or in the alternative, look to communication on other beams of the BTS. For example, beam width may be adjusted where co-channel interference is detected between two systems operating on two separate beams) **(column 10 line 40 – column 12 line 63) (figure 6 and figure 7)**.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Shedrick whose telephone number is (571)-272-8621. The examiner can normally be reached on Monday thru Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kincaid Lester can be reached on (571)-272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Shedrick
October 6, 2005
AU 2687

NICK CORSARO
PRIMARY EXAMINER